

Appl. No. 10/734,419

Amendments to the Claims

Claims 1-33 (Cancelled).

34. (Currently amended) A semiconductor wafer assembly, comprising:
a silicon oxide material having a surface,
a silicon nitride material comprising Si_3N_4 and having a surface, the silicon nitride material being over and physically contacting the surface of the silicon oxide material;
a barrier layer over and physically contacting the surface of the silicon nitride material, the barrier layer comprising silicon, oxygen and nitrogen, the thickness of the silicon nitride material being greater than 1% of a combined thickness of the silicon nitride material and barrier layer; and
a photoresist over and physically against the barrier layer.

35. (Cancelled)

36. (Previously presented) The wafer assembly of claim 34 wherein the barrier layer comprises $\text{Si}_x\text{N}_y\text{O}_z$, where x, y and z are each greater than or equal to 1 and less than or equal to 5.

37. (Previously presented) The wafer assembly of claim 34 wherein the barrier layer has a thickness of less than or equal to 5 nm.

Appl. No. 10/734,419

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38. (Currently amended) A semiconductor wafer assembly, comprising:
a semiconductive substrate comprising monocrystalline silicon;
a silicon oxide layer over and physically contacting the semiconductive substrate;
a composite silicon nitride material over and physically contacting the silicon oxide layer, the composite silicon nitride material having a thickness, a first portion of the thickness having a first ratio of silicon to nitrogen and a second portion of the thickness having a second ratio of silicon to nitrogen which is greater than the first ratio, the second portion being greater than 1% of the thickness of the composite silicon nitride material; and
a photoresist over and physically against the composite silicon nitride material.

39. (Cancelled).

40. (Previously presented) The wafer assembly of claim 38 wherein the second portion of the thickness is less than or equal to 5 nm.

41. (Previously presented) The wafer assembly of claim 38 wherein the first portion of the thickness is greater than 95 nm.

42. (Previously presented) The wafer assembly of claim 38 wherein the second ratio of silicon to nitrogen is at least one.

Appl. No. 10/734,419

43. (Previously presented) The wafer assembly of claim 38 wherein the second portion of the thickness comprises at least one of Si_4N_4 , Si_7N_4 and Si_{10}N_1 .

44. (Previously presented) The wafer assembly of claim 38 wherein the first portion of the thickness comprises Si_3N_4 .

45. (Previously presented) A semiconductor wafer assembly comprising:
a silicon oxide layer over a substrate;

a composite layer over and physically contacting the silicon oxide layer, the composite layer having an thickness, a first portion of the thickness comprising a first silicon nitride material having a first refractive index and a second portion of the thickness comprising a second silicon nitride material having a second refractive index which is greater than the first refractive index, the thickness of the second portion being greater than 1% of the thickness of the composite layer; and

a photoresist over the composite layer.

46. (Previously presented) The assembly of claim 45 wherein the first material is disposed between the silicon oxide layer and the second silicon nitride material.

47. (Previously presented) The assembly of claim 45 wherein the second refractive index is greater than or equal to 2.2.